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The Place of Nutrition in Bringing the Undernourished Child Up to Normal

BY

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SCHOOL OF HYGIENE AND PUBLIC HEALTH
JOHNS HOPKINS UNIVERSITY



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NUTRITION CLINICS FOR DELICATE CHILDREN



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The Place of Nutrition in Bringing the Undernourished Child Up to Normal

BY E. V. MCCOLLUM AND NINA SIMMONDS
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THE material in this article appeared in a paper read at the National Conference of Social Workers, Milwaukee, June, 1921, by Miss Simmonds, and was published in *Mother and Child*, August, 1921. A fuller statement of the authors' contributions to the subject of nutrition will be found in *The Newer Knowledge of Nutrition* (Macmillan, edition of 1922) and *The American Home Diet* (Frederick C. Mathews Company, Detroit).

In the fields of medicine, economics and government, the child has received attention much later than the adult. Within recent years there has been great advance made by various agencies in the work of child welfare, and there is now considerable difference of opinion as to the relative importance of the several lines of procedure whose aims are to improve the physical condition of children. Prominent among these developments are — the school clinic, the dental clinic, the open-air class with rest periods, the school lunch, provision for regular weighing and measuring, physical examinations, instruction regarding correct posture and other matters of hygiene.

All of these agencies have laudable aims and ambitions, and we may look forward to each of them holding its place for years to come. In many instances two or more of them are working together with good results in nutrition classes. This is as it should be, for the problem of improving our children's

prospects of growing up stronger, and capable of living happier and more efficient lives, is so many-sided that it behooves us to restrain our enthusiasm for our own special lines of interest and to grant that no one of the many activities has a monopoly of this great work.

SURGERY VERSUS DIETARY CURE

We have repeatedly come into contact with medical men who take the view that the one really worth-while agency for improving the health of school children is the tonsil and adenoid clinic. They point to the remarkable gains made by children in bad physical condition after tonsils or adenoids have been removed. Malnutrition, they say, is generally the secondary result of some handicap which an operation can remedy. They believe that, if sufficient food is available, the choice of articles which enter into the diet is a matter of relatively slight importance. We believe that this view concerning feeding can survive only in the minds of those whose knowledge of nutrition is archaic.

On the other hand, there are not a few among our visitors who feel that the really sound position is almost the direct antithesis of what has just been stated. They have been occupied in teaching boys and girls of school age what to eat and how much to rest. They have seen many children resume growth and develop a healthy appearance, without undergoing surgical treatment, even though they were harboring enlarged tonsils, or carrying other handicaps to health. These workers remark upon the extent to which a properly nourished child can tolerate poisoning through infected tonsils or abscessed teeth and still maintain its normal rate of growth. There is much evidence that this is true, but this fact does not serve as an argument against the value of the clinic.

THE NEED OF CO-OPERATION

There are many cases of children showing all signs of malnutrition who have at least a diet sufficiently good to have

enabled other members of the family to grow in an apparently normal manner. Such cases can only be accounted for by the fact that there is some other factor than diet which is primarily responsible for their poor condition. In most cases the members of this group have been injured by one or more of the contagious diseases of childhood and they have not been able to overcome their handicap. There seems to be much reason to believe that throat and nose infections are in most instances sequels to injuries of this kind sustained in infancy or early childhood. Where a pathological condition has definitely developed the rational thing to do is to introduce surgical treatment wherever it has a prospect of success. Only those who take a narrow view of the subject would be inclined to deduce from evidence of this kind that attention to diet is a matter of relatively little importance in such cases.

STUDIES IN ANIMAL NUTRITION

Every one now accepts the view that there are fundamental similarities in the physiological processes of man and the lower animals. Almost all that we know about human physiology is based upon deductions from experimental results obtained with animals. In a similar manner we have derived our knowledge of the principles of nutrition. There are several diseases of man which are directly caused by specific faults in the diet. These can be produced experimentally in animals and their nature and causes can be studied. Animals require the same foodstuffs for their maintenance and growth as does the human species. We have in recent years gained a remarkable amount of knowledge concerning the extent and manner in which a properly selected diet can promote health. Few are familiar with the results of these studies, principally because they have been made so recently and because they have been published in various scientific papers which it was not easy to study with sufficient care to master their meaning. It is just as absurd for any one, whatever may be his technical achievements in another field of knowledge, to form an inde-

pendent judgment as to the bearing of food selection on health, as it is for one who has no detailed knowledge in a certain field to assume to have judgment comparable to an expert in that field.

In our laboratory during the last few years we have studied the problem of nutrition with an animal colony, in which we have duplicated human experience with reference to diet, in so far as the human diets in various parts of the world represent distinct and widely different systems. Our studies have included much work with the strictly carnivorous diet, the vegetarian diet, the diet largely derived from cereals, tubers and meats, as well as those in which dairy products find an important place. We now understand the extent to which we are to expect success in the nutrition of animals from any practical combinations of natural foods.

DIET AND THE INDIVIDUAL

In addition we have gained information which is much more significant in our present discussion than are the technical data regarding the peculiar shortcomings of this or that natural foodstuff. The data obtained by our biological method for food analysis, is, however, actually the basis of much important knowledge as to how to secure definite effects by combining foods whose properties are known. We refer, for instance, to the effect of diets of definite composition, derived from various sources, on the life history of the individual. We have learned that it is necessary to consider the life history of a man or an animal in order to gain a proper perspective in regard to the rôle of diet in the preservation of health and longevity. It is not sufficient to look at a child or an animal at any given time and to say that it looks essentially normal, and on the basis of this evidence to dismiss further thought as to the influence of diet upon its welfare.

“AVERAGE” VERSUS “OPTIMAL”

In the first place our standards of what constitutes normality in children and in adults are lamentably at fault. We

take as the "normal" approximately the average physical development with which we are familiar, rather than the "optimal" development as represented by the best developed members of the community. These last should be taken as the standard toward which to work in the development of all. The attainment of such success can be expected only when the diet approximates the optimum with respect to all its parts.

EFFECTS OF IMPROPER DIETARIES

When we regard the human problem in the light of standards gained through animal experiments, we cannot help concluding that changes have taken place in the diet of the people of Europe and America during the last century which have tended seriously to undermine vitality, lead to easily observable physical inferiority, shorten the period of productive life and hasten the onset of the signs of old age. In human experience other factors, such as hygiene, sanitation, disease, injurious occupations, overfatigue and worry, enter as complicating factors. In our animals we have studied the effects of diets of different character quite apart from other variable factors which influence the life history of the individual. There can be no doubt that this is the very cornerstone of the entire structure which we are trying to erect for the protection of mankind. Its importance must not be overrated, but any one who studies the results of our experiments during the last ten years cannot help being convinced that there is nothing more fundamental in the production of bodily vigor and the maintenance of high resistance and longevity than a properly planned diet.

A PROBLEM OF EVERYDAY LIFE

It is not the startling failure of those who suffer from deficiency diseases which should hold our attention, but rather the much more common and more insidious, because unexpected, effects of diets of the meat, potato and bread types which are so common in this country and in Europe during modern

times. In our latest research on the cause of rickets — a disease which has existed for thousands of years — we have definitely settled the problem of the cause of the disease which has been discussed for centuries. We have shown that diet is the factor which is primarily responsible, although other evil conditions may predispose to it. This disease, which is characterized by faulty bone growth, is a national health problem and is essentially dietary.

SALVAGING OR PREVENTING

Space will not permit more than a few passing remarks on the subject of our present discussion, but one feature of it looms up larger and larger as our experience becomes more extensive. Irrespective of the agency which operates to improve the physical condition of our children, the work which is being done with the child of school or pre-school age is essentially a salvaging operation. We may remove a focus of infection, free the child from difficult breathing, repair its teeth, or teach it personal hygiene, but we are at best only repairing for temporary service or affording temporary relief to a damaged human being. By the time a child has reached school age it is already past the time for anything very fundamental in establishing a vigorous constitution. We can add many years to its life in some cases, increase comfort and happiness, make the child a more useful citizen — an accomplishment sufficient to warrant all the effort which we can expend upon it. The extent to which we shall meet with success will be determined in great measure upon inherited vitality.

The opportune time to attain the maximum benefits of proper nutrition is in prenatal life and early infancy, and more effort should be directed toward the education of mothers concerning the benefits to be derived by their children from right living on their part. Before the teeth are erupted, for instance, their enamel is already formed. If it fails to form a satisfactory union in the places where it meets as it extends

away from the primary centers of enamel formation on the cusps, no amount of care and scrubbing will serve to preserve the tooth. The time when the teeth are forming is critical in the life of the child and the secret of preventive dentistry lies here in the proper diet of the mother during this period. This goes far back of the age at which the school clinic and other agencies are attempting to reach the child and teach him health habits. Once the teeth are formed they cannot be improved in any marked degree, but we are in possession of knowledge which, if properly used, would gradually bring us back to the condition of satisfactory dentition enjoyed by our ancestors.

COMMON TYPES OF DIET

In conclusion we would call attention again to the types of diet which are successful in the nutrition of man and the lower animals. They are first, the strictly carnivorous, in which practically all parts of the animal are eaten; second, the type so common in parts of the Orient in which the leafy vegetables such as spinach, cabbage, lettuce, turnip and beet tops as well as other leaves find a prominent place; and lastly the diet of certain American homes, containing liberal amounts of milk and other dairy products.

The limitation in our diet is that we do not make sufficient use of what may well be called *protective foods* — milk and the leafy vegetables. These are so constituted as to correct the faults in a cereal, legume seed, tuber and meat diet most common in our country today. The sooner we carry this information to every child in the land and send him home with this message to his mother, the sooner will we have started on the right road toward better health and physical development.

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LIST OF PUBLICATIONS

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PAMPHLETS

1. A Nutrition Clinic in a Public School, by William R. P. Emerson, M.D.
2. Nutrition Clinics and Classes: Their Organization and Conduct, by William R. P. Emerson, M.D.
3. Record Book for Measured Feeding, by William R. P. Emerson, M.D. Price 25 cents, \$20.00 a hundred.
- 7.* Defective Nutrition and Growth: A Selected Bibliography, by Frank A. Manny.
8. Physical Defects in Children: Report of Six Hundred and Two Cases, by William R. P. Emerson, M.D.
14. Practical Mental Examinations for Growing Children, by A. Warren Stearns, M.D.
17. Malnutrition in Children: Report of a Clinic, by William R. P. Emerson, M.D.
20. How to Organize a Local Nutrition Center.
24. The Place of Nutrition in Bringing the Undernourished Child up to Normal, by E. V. McCollum and Nina Simmonds.
26. Weight and Height in Relation to Malnutrition, by William R. P. Emerson, M.D., and Frank A. Manny.

The serial numbers omitted have either been superseded by other pamphlets, or the material covered has been incorporated in the chapters of Dr. Emerson's book on "Nutrition and Growth in Children," published by D. Appleton & Co.

With the exception of those whose prices are indicated, the publications are furnished at the price of ten cents for a single copy, postage not included. Special rates will be made for larger quantities.

*Out of print.

